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RELATION OF THE NEW FOOD AND DRUG LAW TO OFFICIAL PREPARATIONS.

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AT the present time, when so much is being said and written concerning wholesale adulteration and substitution, it is no wonder that people are becoming suspicious of almost if not quite everything with which they come in contact. That they feel their inability, as individuals, to cope with these alarming conditions is evidenced by their demand for legislative enactments for their protection.

This condition of affairs is especially true with reference to foods and drugs, substances so specifically essential to the health of the human family. These two classes of substances are usually grouped under a common head, especially in our statutes, though in reality they have little in common aside from their relation to the health of the individuals of the nation.

The United States government has for a number of years been actively engaged in the analysis of foods and the publication of methods for their analysis, and for the detection of their chief adulterants. It is, however, only recently that it has interested itself in the question of drugs and their adulterants, but it is interesting to note in this connection that it considered this branch of investigation sufficiently removed from the province of food chemistry to equip a new laboratory for this purpose, and to place it under the immediate direction of a man who is not only a trained pharmacist and chemist but one who has for years been actively engaged in the preparation and analysis of drugs and medicines. Several bulletins have already been issued by the chief of this new laboratory and many important problems are now in the course of solution. Aside from the activity displayed by the federal government in the interests of pure foods and drugs, several states are beginning to evince an activity in this direction, Kansas among others. This state has had for years a good law regulating the quality of foods and drugs, but it had almost become a dead letter through want of an enforcing officer. The last legislature, however, took action in this direction with reference to foods, and since January of this year a considerable amount of investigation has been done by the State Board of Health. This organization has also interested itself in the question of pure drugs, and there is every indication that the next legislature will enact laws which will place Kansas in the front rank with those states that control the character of their foods and drugs.

The cause for adulteration in drugs is much the same as for adulteration in foods, and the remedies will be along the same lines. So long as our grandmothers gathered the yearly stock of medicinal herbs and dried them in the garret there was no more question concerning their efficacy than there was as to the wholesomeness of the food prepared by the same individual, but when the drug collecting, as also a very large part of the food preparation, passed from unselfish, loving hands into those motived very largely by a desire for pecuniary gain, people in general began to inquire more closely into their origin. In opposition to this class of individuals, whose aim primarily is perhaps not so much to defraud as to secure for themselves more of the worldly goods, came those who demanded the "square deal," and who began to devise simple tests whereby the quality of the crude article could be at least roughly ascertained. The discovery of alkaloids and other chemical principles in drugs, to which their therapeutic efficiency is very largely attributed, gave at once a chemical method for their valuation. The first vegetable drug to be valued by this standard was opium, the drug in which the first alkaloid was discovered.

The real beginning of the movement to secure uniformity in medicines antedates the first pharmacopœia, that of 1820, but the first pharmacopœia to contain chemical tests of any importance for the valuation of drugs was the United States Pharmacopœia of 1880. Here we find standardized by volumetric assay thirty-seven inorganic chemicals, six organic chemicals, and fifteen preparations for an inorganic constituent, besides a few gravimetric assays, including the assay of two drugs—opium and cinchona—for alkaloidal constitutents. In the next revision of this pharmacopœia the list of standards was much extended, and in the latest revision of this book, the eighth, commonly called the "United States Pharmacopœia of 1900," this list was still further extended. Comparing the number of quantitative tests in this book with those in the previous pharmacopœia, we find that where we formerly had only 114 volumetric and 14 gravimetric assays, we now have 149 volumetric and 35 gravimetric assays.

The articles standardized in the pharmacopœia of 1900 conveniently come under three heads: First, the chemical substances; second, the crude products derived from the vegetable and animal kingdom; and third, the preparations or the medicines compounded from the first two classes. The chemical substances in the first class number about 300, and practically all of them are required to conform to certain prescribed chemical and physical requirements. The substances included in the second class, numbering about 240, are practically all accurately described, and about 50 of them have, in addition, a chemical method of valuation. In the third division, the preparations, there are 34 classes, which comprise 413 formulas. In 21 of these classes there is no attempt at standardization or description of any kind. In the remaining 13 classes there are 40 preparations for which there are volumetric assays, 17 preparations for which there are gravimetric assays, 1 preparation gasometrically assayed, and 18 preparations for which there are qualitative tests for purity only. This leaves 337 preparations in the pharmacopœia, or more than 80 per cent. of them, without any official description, definition, or standard.

The federal pure food and drug law which goes into effect January 1, 1907, states that drugs, and these are defined in the broadest sense of the term, so as to include, "all medicines and preparations recognized in the United States Pharmacopœia or National Formulary for internal or external use, and any substance or mixture of substances intended to be used for the cure, mitigation or prevention of disease of either man or other animals"—it states that these drugs "shall be deemed adulterated if, sold under or by a name recognized in the United States Pharmacopœia or National Formulary, they differ from the standard of strength, purity or quality as determined by the test laid down in the United States Pharmacopœia or National Formulary official at the time of investigation." Provision is made whereby these drugs may not be considered adulterated, provided they are properly labeled with reference to their quality. The National Formulary referred to is purely a book of formulas, without any so-called tests, either chemical or physical. Its formulas, 570 in number, are thus added to those of the pharmacopœia, making a total of 983 preparations, of which 907, or more than 92 per cent., are unstandardized.

The analysis of the preparations is by far the most difficult of the three classes of pharmacopœial substances, and it is here that the analyst who is not a trained pharmacist as well as an expert chemist needs to display the greatest caution, for surely the man without experience in putting these different drugs together is a poor judge of how to take them apart in a way to show whether the official formulas have been properly compounded or not.

The mere fact that a tincture which is prepared by extracting a given drug with diluted alcohol is found to be of lower alcoholic strength is not necessarily an indication that the tincture has not been properly made, or that it is not of official quality. It is comparatively easy to decide whether a crude drug corresponds to the official definition and description, but after this drug has been broken into particles previous to making it into a preparation its quality is much more difficult to ascertain, and to judge of its quality from the finished preparation is unfortunately far too often an impossibility.

The absence of the physical characteristics from a preparation which are well known to the experienced druggist should go far towards condemning the preparation; but, on the other hand, their apparent presence is a poor guaranty for genuineness, for it is in this very particular that the skilful sophisticator takes pride in his iniquity and frequently outdoes himself. This is especially true in the case of colored and odorous preparations. Take, for example, the well-known tincture of vanilla; it is safe to say that but few people have any acquaintance with the pure article, and if they were allowed free choice between the pure and the factitious they would in the majority of instances choose the latter, though the relative value of it, based upon its actual cost, is not one-third that of the official article. It is in cases of this kind that the misbranding clause in the new law is especially pertinent. If you prefer the genuine, buy your tincture of vanilla, United States Pharmacopœia; if you prefer the factitious, buy the compound tincture of vanillin, National Formulary; if you belong to the don't-care class, continue to use the "extract of vanilla," which is generally inferior in quality to either of the others, and usually as high, if not higher, in price.

Besides the flavoring essences, the spices and condiments will also be affected by this clause, but in a way that will work to the good of the consumer. The result of adulteration in such articles, however, is of little moment when compared with the seriousness of adulteration in the realms of medicines proper. In this connection, it should be borne in mind that the further removed from the crude drug the medicine is, the greater the opportunity for adulteration and the less the chance for detection. In view of these points, and in spite of the new law, the fact still remains that the only safe way at the present time is to patronize those druggists whom you know as men as well as druggists and whose ability and integrity you know to be above question. If it is your desire to use cheap drugs, they can furnish them as cheaply as any one; but in any case do not begrudge them their just compensation for the knowledge and skill they place at your disposal in time of need.